

ABSTRACT

A device for transporting particles containing a magnetic material in a selected direction, the device having:

- a support member having a support surface for supporting the particles, the support surface extending in the selected direction;

- a magnet arranged to generate a magnetic field for retaining the particles on the support surface whereby the magnetic field on the support surface is arranged to have a high-field band, a low-field band, and a magnetic field gradient in a gradient zone between the high- and low-field bands whereby the magnetic field strength in the high-field band is higher than that in the low-field band;

- means for advancing the high- and low-field bands relative to the support surface in a direction having a component in the direction of the magnetic field gradient on the support surface, whereby the high-field band is followed by the low-field band; whereby along the high-field band at least a first magnetic pole and a second magnetic pole of opposite polarity are arranged such that a first magnetic path on the support surface from the first magnetic pole to the second magnetic pole is shorter than a second magnetic path on the support surface crossing the gradient zone from the first magnetic pole to any other nearest magnetic pole of opposite polarity.